Correlation Coefficient

Correlation coefficient is a measure of linear association between two different variables. It can also be used to identify some forms of non-linear association by modifying the variables under study (e.g. taking a natural log of one of the variables).

Two variables that have no association will have a zero correlation coefficient. Two variables that have perfect association (they move together in perfect synchronization) will have a correlation coefficient of +1. Two variables that have perfect negative association (when one goes up the other goes down by the same degree) will have a correlation coefficient of -1.

The correlation coefficient is an integral part of many other forms of statistical analyses, including regression analysis. Regression analysis is a means of uncovering relationships between dependent and independent variables and creating models to explain one from the others.

If an analyst can determine that two variables are significantly positively or negatively correlated, that analyst can predict, with better than chance accuracy, the value of one variable based on the value of the other variable.